



URBANIZATION AND SOCIAL CRIME: A STUDY ON SOCIO-ECONOMIC DIMENSIONS OF THE MANIPUR CENTRAL VALLEY

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ABSTRACT

Geography is concerned to provide accurate, orderly, and rational description and interpretation of the earth's surface. The study of population dynamics and its impact on social crime is crucial for understanding regional development and planning. The present study examines the dynamics of population growth, urbanization, and social crime in Manipur's Central Valley. Utilizing the data from the primary and secondary sources (such: NCRB, Superintendent of Police, Manipur central Valley, and Census of India). The research adopts technique, such as Decadal Growth method, Principal component Analysis. Over a 70-year period from 1951 to 2021, the region witnessed a consistent rise in population, growing from 3,87,523 to 18,77,416. Despite this growth, the pace has decelerated, reflecting a shift from high to moderate growth rates due to factors such as birth rates, mortality rates, and migration patterns. Urban population data from the 2011 Census reveals significant regional disparities, with Imphal West being the most urbanized and Bishnupur the least. Principal Component Analysis (PCA) of social crime data identifies three key patterns: "Anomie Violence," "Marginalized Deviance," and "Economic Strain Deviance," each associated with different regions and types of crime. A comparison of social crime patterns with urban population sizes highlights varying correlations, suggesting complex interactions between demographic changes and crime rates. This analysis underscores the need for targeted urban planning and crime prevention strategies in response to evolving socio-economic dimensions.

KEYWORDS: Population Growth, Urbanization, Social Crime, Principal Component Analysis, Demographic Transition, Social Crime Pattern

INTRODUCTION

Hartshorne in his monumental book, *The Nature of Geography* stated that, "Geography is concerned to provide accurate, orderly, and rational description and interpretation of the earth's surface" (Hartshorne, R, 1959). Social Geography, a vital branch of Human Geography, aims to analyze the social patterns and processes emerging from the distribution and accessibility of limited resources (Eyles, J, 1983). This field of Human Geography examines the societal origins of various social and environmental issues and proposes potential solutions.

The study of population dynamics and its impact on social crime is crucial for understanding regional development and planning. In Manipur's Central Valley, a significant demographic shift has occurred over the past seven decades, characterized by a steady increase, in population from 3,87,523 in 1951 to 18,77,416 by 2021. This growth has accompanied by varying decadal changes in population rates, reflecting broader socio-economic transformations. Concurrently, the region has experienced differential urbanization, with Imphal West emerging as the most urbanized area, while Bishnupur remains comparatively less developed. This demographic trend reflects a complex interplay of factors, including natural population growth and migration patterns (Abeysinghe, 1986). The demographic change examined through the lens of Karl Marx's theories on social class, economic disparity, and the resulting social conflicts. Marx emphasized that population growth in capitalist societies often exacerbates class struggles

and intensifies economic inequalities, leading to heightened social tensions and deviant behaviors (Saito, 2020).

Urban population distribution reveals significant disparities in development and infrastructure across the valley, influencing social structures and crime patterns (S, Surendra & Gupta, R, 2023; Sengupta, R., & Mukherjee, S, 2018). Principal Component Analysis (PCA) has identified distinct crime patterns, including "Anomie Violence," "Marginalized Deviance," and "Economic Strain Deviance," each associated with specific regions and types of crime. These patterns highlight the complex relationship between socio-economic conditions and crime rates.

The interplay between urbanization and crime is a critical area of study, as urban growth can both mitigate and exacerbate crime (Gupta, R, 2020). Understanding these dynamics is essential for developing effective urban planning and crime prevention strategies (Brantingham, P.J. and Springer, L.M, 1981). This research aims to elucidate the connections between demographic changes, urbanization, and crime patterns, providing valuable insights for policymakers and planners to address the challenges faced by the Central Valley.

The Manipur Central Valley is located between latitudes 24°20' N and 25°0' N and longitudes 93°0' E and 94°0' E, with a geographical area of about 2,067 km². The region is divided into five district (central place) Imphal West, Imphal East, Thoubal,

Kakching and Bishnupur respectively. The environment and natural ecology of the Manipur Central Valley had encircled by the Eastern and Western Hills. Further, towards the southeast of the valley is the rectangular in shape saucer-shaped depression that gives rise to Loktak Lake (Singh, Nabakumar, Th, 2014). The Central valley is drain by Imphal, Iril, Thoubal, and Nambul River. Under “Köppen’s scheme” the climate of the region fall under the “cwg” zone (Bhattacharyya, N.N, 2006). In 2001, Manipur had 33 urban centres and increase to 51 in 2011. Out of the 51 urban centres, 44 are in Manipur Central Valley (Lowland) and 7 in the Hill region, highland.

Objectives

1. Analyze population growth trends and rates in Manipur’s Central Valley from 1951 to 2021
2. Evaluate urbanization levels and disparities across the Central Valley using 2011 Census data.
3. Identify and describe key social crime patterns in the region through Principal Component Analysis
4. Examine the relationship between urban population sizes and social crime patterns in the Central Valley

MATERIALS AND METHODS

The study utilizes several key databases to examine population growth, urbanization, and social crime patterns in Manipur’s Central Valley. Historical population data from the Census of India for the years 1951, 1961, 1971, 1981, 1991, 2001, and 2011, this dataset provides insights into demographic trends, growth rates, and decadal variations. Urban Population Data from the 2011 Census focusing on urban population distribution across regions in the Central Valley, specifically Imphal West, Imphal East, Thoubal, and Bishnupur. Social Crime Data from Crime statistics sourced from law enforcement agencies including data on various types of social crimes such as robbery, theft, murder, and kidnapping. This data has used for Principal Component Analysis to identify crime patterns. The primary data had collected from the field survey using personal observation and unstructured interview and discussion with the expert in the field.

The methodology used for the present study is firstly the Population Growth Analysis. It is calculate using the following formula:

$$Dg = \frac{P_1 - P_2}{P_2} \times 100 \dots \dots \dots (1)$$

Dg= Decadal Growth rate of the population, P1=Population at End of Decade, P2= population at the Start of the Decade.

The second technique is the urbanization assessment to analyze urban population, distribution, and levels of urbanization across different regions using the 2011 Census data. Thirdly, Principal Component Analysis (PCA): Apply PCA to social crime data to identify major crime patterns such as “Anomie Violence,” “Marginalized Deviance,” and “Economic Strain Deviance.” Analyze the loadings and scores for different regions is the third technique. The formula is below:

$$PC_{ij} = Z_{ij} \times v_i \dots \dots \dots (2)$$

Where, PC_{ij}=Principal Component Score, Z_{ij} is the standardization the Variables (z-score), v_i=Eigen Vector Lastly, Pearson correlation analysis to examine the relationship between urban population sizes and identified crime patterns to understand how urbanization influences crime rates.

RESULTS AND DISCUSSION

Demography Growth

The data on table.1 provides a comprehensive view of population growth, decadal variation, and growth rates in a specific region from 1951 to 2021. Over this 70-year period, the population exhibited a steady upward trend, starting at 3,87,523 in 1951 and reaching 18,77,416 by 2021. This continuous increase reflects ongoing demographic expansion, influenced by factors such as birth rates, mortality rates, and possibly migration patterns (Table.1).

Year	Population	Decadal	Growth in %
1951	387523	-	-
1961	532793	145270	37.49
1971	724537	191744	35.99
1981	929077	204540	28.23
1991	1185992	256915	27.65
2001	1411766	225774	19.04
2011	1633672	221906	15.72
2021	1877416	243744	14.92

Source: Compile by author from Census of India, (1951-2011); Note: 2021 based on projection

Table.1: Growth of Population in Manipur Central Valley

Decadal variation, which measures the absolute increase in population every ten years, shows noticeable fluctuations. The most significant increase occurred between 1981 and 1991, with a rise of 2,56,915 individuals. Conversely, the smallest decadal variation has observed between 1951 and 1961, with an increase of 1,45,270. Despite these fluctuations, the overall trend is one of growth, though the magnitude of this growth has varied from decade to decade.

The growth rate percentage, which highlights the pace at which the population is expanding, reveals a consistent decline over the decades. In 1961, the growth rate was at its highest, 37.49%, indicating a rapid increase in population. However, this rate has steadily decreased, falling to 14.92% by 2021. This decline in growth rate suggests that while the population continues to grow, the speed at which this growth is occurring is slowing down (Table.1).

This slowing growth rate could be indicative of various underlying factors, such as a decline in birth rates, changes in mortality rates, or shifts in migration patterns. The transition from rapid to slower population growth may reflect broader socio-economic changes within the region. As the population stabilizes, there may be reduced pressure on resources, infrastructure, and social services, potentially leading to a

more balanced and sustainable development path. However, this trend also raises important questions for policymakers and planners. The declining growth rate might suggest that the region is approaching a demographic equilibrium, where the population size becomes more stable over time.

This could have implications for labor markets, economic growth, and social support systems, as a stabilized population might lead to different demands compared to a rapidly growing one. In summary, the data paints a picture of a region experiencing sustained population growth but at a gradually slowing pace. The shift from rapid to more moderate growth suggests that the region is entering a new phase of demographic transition, with important considerations for future planning and development. This evolving demographic landscape requires careful analysis and strategic planning to ensure that the region continues to develop sustainably and meets the needs of its population.

Urbanization

The urban growth of Manipur Central Valley from 1951 to 2011 shows rapid early expansion followed by deceleration and stabilization (Table.2). In 1951, the urban population was only 2,862, but by 1961, it surged to 67,717, marking an enormous decadal growth rate of 2,266%. The population continued to rise, doubling to 1,41,492 in 1971, though the growth rate dropped to 109%. By 1981, the population reached 3,75,460, with a decadal increase of 2,33,968 people and a growth rate of 165%. However, in the 1990s, growth slowed significantly, with the population rising to 5,05,848 and a reduced growth rate of 35%. This trend continued into 2001, where the population reached 5,75,968 with a minimal growth rate of 14%. In 2011, the population recovered moderately to 7,44,924, with a growth rate of 29%. Overall, urban growth was rapid in the early decades but slowed and stabilized in later years.

Year	Urban Population	Decadal	Growth in %
1951	2862	-	-
1961	67717	64855	2266
1971	141492	73775	109
1981	375460	233968	165
1991	505848	130388	35
2001	575968	70120	14
2011	744924	168956	29

Source: Prepared from Census of India (1951-2011)

Table.2: Urbanization in Manipur Central Valley

The Census data from 2011 provides an insightful look into the urban population distribution across the Manipur Central Valley, highlighting significant regional differences. Imphal West emerges as the most urbanized region, with an urban population of 3,22,879, accounting for 43% of the valley's total urban residents. This indicates that nearly half of the valley's urban population is concentrated in Imphal West, making it the region with the highest level of urban development. Imphal East follows, contributing 25% of the total urban population, with 1,83,207 urban inhabitants. This suggests that Imphal East also

plays a significant role in the valley's urban landscape, though it is less urbanized than Imphal West. Thoubal comes next with 1,51,333 urban residents, representing 20% of the valley's urban population, placing it in the middle tier of urbanization within the valley (Fig.1).

Bishnupur, on the other hand, has a smaller urban population of 87,505, making up just 12% of the total. This shows that Bishnupur is less urbanized compared to the other regions. The overall urban population of the valley totals 7,44,924, with a clear concentration in Imphal West and significant populations in Imphal East and Thoubal (Kakching). This distribution underscores the dominance of Imphal West in the valley's urban development, likely reflecting better infrastructure, economic opportunities, and urban amenities in that region.

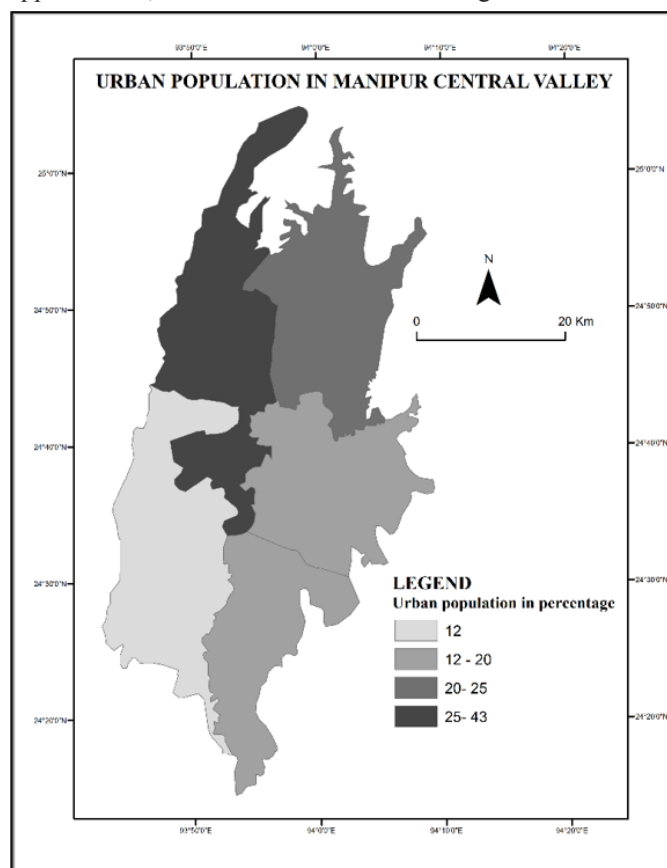


Fig.1

The Census data also indicates varying levels of urbanization across the valley, with Imphal East and Thoubal contributing significantly, while Bishnupur remains less developed in terms of urban population. This pattern of urban concentration in specific regions has implications for resource allocation, urban planning, and regional development strategies in the Manipur Central Valley (Fig.1).

Social Crime Analysis

Principal Component Analysis

The analysis of principal components reveals three distinct crime patterns across the regions of Manipur's Central Valley. The First Principal Component, labeled "Anomie Violence," indicates that Imphal East scores highest (0.9624), followed

by Imphal West (0.696), Thoubal including Kakching (-0.503), and Bishnupur (-1.155). This component reflects a pattern of various social crimes, with strong positive loadings for robbery (0.8965), theft (0.819), attempt to commit murder (0.808), rape (0.793), and kidnapping and abduction (0.741). The high score in Imphal West suggests a higher prevalence of these violent crimes, whereas Bishnupur negative score indicates a lower association with these criminal activities (Table.3 and 4).

The Second Principal Component, termed “Marginalized Deviance,” reveals significant positive factor loadings for culpable homicide not amounting to murder (0.926) and murder (0.860) (Table.3). This component shows a strong concentration in Thoubal (0.29), Imphal West (-1.59) and Lowest score in Bishnupur (-1.92) and Imphal East (-2.90). It highlights crimes such as attempt to commit murder (0.380), theft (0.235), kidnapping and abduction (0.073), and burglary (0.015) with medium loadings. The high loadings of homicide-related crimes suggest that marginalized deviance is more prevalent in areas with higher scores on this component (Table.3 and 4).

Eigen Vector	X1	X2	X3	X4
F1	0.007	0.325	0.808	0.792
F2	0.86	0.926	0.38	-0.608
F3	0.511	-0.192	-0.45	-0.032
Eigen Vector	X5	X8	X9	X10
F1	0.74	0.896	0.289	0.818
F2	0.073	-0.427	0.014	0.235
F3	0.667	0.117	0.956	-0.523

Source: SPSS; Note: Eigen vector is known as Factor Loading; Where X1= Murder, X2= Culpable homicide not amounting for murder, X3= Attempt to commit murder, X4= Rape, X5=Kidnap and Abduction, X6=Dacoity, X7= preparation and Assemble for Dacoity, X8=Robbery, X9=Burglary and X10=Theft. F=Factor loading or Eigen Vector

Table.3: Eigen Vector for Social Crime, 2021

Region	PC1	PC2	PC3
Bishnupur	-4.27	-1.92	-0.67
Thoubal	0.54	0.29	3.2
Imphal East	-0.19	-2.9	1.28
Imphal West	4.23	-1.59	-1.92

Source: Compile by the Author from NCRB and Superintendent of Police, Manipur Central Valley; PC1= Anomie Violence; PC2=Marginalized Deviance; PC3=Economic Strain Deviance; Note: the name is based on the Eigen Vector; Note: Kakching included in Thoubal

Table.4: Principal Component Score

The Third Principal Component, “Economic Strain Deviance,” shows Thoubal with the highest score (3.2), followed by Imphal East 1.28), Imphal West (-1.92), and Bishnupur (-0.67). Positive loadings on this component include burglary (0.957), kidnapping and abduction (0.668), murder (0.511), and robbery (0.117), indicating that these crimes are linked to economic strain and tend to occur more frequently in regions with higher

scores on this component (Table.3). The analysis suggests that economic hardship or inequality plays a significant role in influencing crime patterns, with areas experiencing higher economic strain showing a grater incidence of these crimes (Table. 4).

Comparisons of Social Crime and the Urban population

The correlation analysis reveals distinct crime patterns related to urban population sizes across regions. Imphal East, with an urban population of 183,207, shows a low negative association with anomie violence (PC1: -0.19) and marginalized deviance (PC2: -2.9), but a moderate positive association with economic strain deviance (PC3: 1.28). Imphal West, having the largest urban population of 322,879, is strongly associated with anomie violence (PC1: 4.23) and has a moderate negative association with marginalized deviance (PC2: -1.59) and economic strain deviance (PC3: -1.92) (Table.5).

Bishnupur, with the smallest urban population of 87,505, shows a strong negative association with anomie violence (PC1: -4.27) and marginalized deviance (PC2: -1.92), and a slight negative association with economic strain deviance (PC3: -0.67). Thoubal, with an urban population of 151,333, has a mild positive association with anomie violence (PC1: 0.54) and marginalized deviance (PC2: 0.29), and a strong positive association with economic strain deviance (PC3: 3.20). The overall correlation reveals a strong positive link between urban population and anomie violence (0.94), a very weak negative correlation with marginalized deviance (-0.07), and a moderate negative correlation with economic strain deviance (-0.4). This suggests larger urban populations are more likely to experience higher anomie violence, while the relationship with marginalized deviance is weak, and economic strain crimes show a moderate decline with increased urban population.

Region	Urban Population	PC1	PC2	PC3
Bishnupur	87505	-4.27	-1.92	-0.67
Thoubal	151333	0.54	0.29	3.2
Imphal East	183207	-0.19	-2.9	1.28
Imphal West	322879	4.23	-1.59	-1.92
Correlation	*	0.94	-0.073	-0.46

Source: Compile by the author; Where: PC= Principal Component, *=Auto correlation; Note: Kakching included in Thoubal

Table.5: Urban population and Social Crime Correlation

The high correlation between urban population size and anomie violence is largely driven by socio-economic factors (Tita, G. E & Radii, S. M, 2010). In more urbanized regions like Imphal West, the higher prevalence of anomie violence can be attributed to the pressures of rapid urbanization, social disintegration, and economic disparity. The urban environment promotes a gloomy outlook and frustration in the urban life to encourage many social crime, drug addiction, prostitution, mental disease etc. (Singh, Nabakumar, Th, 2014). The weak negative correlation with marginalized deviance and the moderate decline in economic strain-related crimes also reflect the socio-economic dynamics at play, where economic opportunities and social

support structures in larger urban centers mitigate some forms of deviance. Thus, the socio-economic dimension is a key factor shaping these crime patterns in the Manipur Central Valley (Clark, W. A. V, Han M. S, & Coulter, R., 2014.; Gerben, J. N. B, 2007; Lefebvre, H, 1991).

CONCLUSION

The data provides a clear overview of demographic and crime patterns in Manipur Central Valley from 1951 to 2021. Over this 70-year span, the population increased from 387,523 to 1,877,416, with growth rates slowing over time. While the highest population surge occurred between 1981 and 1991, the growth rate declined from 37.49% in 1961 to 14.92% in 2021, reflecting changes in birth rates, mortality rates, or migration. The 2011 Census shows that Imphal West is the most urbanized, holding 43% of the urban population, followed by Imphal East (25%), Thoubal including Kakching (20%), and Bishnupur (12%).

Principal component analysis reveals three crime patterns: "Anomie Violence," "Marginalized Deviance," and "Economic Strain Deviance," with Imphal West leading in anomie violence, Thoubal showing economic strain-related crimes, and lower crime associations in Imphal East and Bishnupur. Urban population correlates strongly with anomie violence, while economic strain-related crimes have a moderate negative correlation. These insights stress the importance of targeted urban planning and crime prevention.

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